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ABSTRACT

This paper reports on a statewide project in New South Wales, Australia, in which 241 teachers of students with moderate or severe disabilities responded to a survey concerning their needs and concerns in the area of communication interventions. A large number of teachers expressed a need for support in assessment, programming, and instructional practices. Twenty-two percent of respondents requested speech pathology services. A conceptual framework for intervention is explored, stressing an interactive and multi-level approach to the functions, forms and social aspects of the communication process. An instruction manual for this framework is introduced and discussed in terms of its basis in both the identified concerns and needs of practitioners working in the field and the directions evident in empirical literature. This manual is intended to serve as a stimulus to change in the ecology of learning environments, program design and implementation. The manual's individual sections address the following areas: (1) assessment, (2) programming, (3) instruction, (4) development from pre-intentional to intentional communication skills, (5) development from intentional to symbolic communication skills, and (6) extension of symbolic communication skills. (Contains 30 references.) (PB)

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CREATING COMMUNICATIVE CONTEXTS: AN AUSTRALIAN STUDY

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Abstract

This presentation will report on a statewide project in NSW, Australia in which teachers of students with severe disability were surveyed to ascertain their needs and concerns in the area of communication interventions. A conceptual framework for such interventions is explored, stressing an interactive and multi-level approach to the functions, forms and social aspects of the communication process.

A responsive and practical instructional manual is introduced and discussed in terms of its basis both in the identified concerns and needs of practitioners working in the field and the directions evident in the empirical literature. This resource serves as a stimulus to change in the ecology of learning environments, program design and implementation and underlines the integral role of communication in the wider processes of community life and inclusion.

CREATING COMMUNICATIVE CONTEXTS: AN AUSTRALIAN STUDY

Introduction

In a variety of ways that many of us take for granted, communication processes provide us with many benefits, of which lifestyle choices and control (Williams, 1991) are but two examples. For individuals with a severe disability, the opportunity to participate in meaningful communication is, as for the wider population, crucial to an optimal quality of life. Accordingly, a persons communication ecology, the human environments in which interactions occur, plays a primary role in initiating, receiving, responding to and encouraging communication. In essence it may well be pointless to be able to competently sign, gesture, speak or operate a computerised communication board unless those towards whom such efforts are directed are interested in, attuned and responsive to your efforts.

Communication is a dynamic signaling process by which meanings are conveyed and received. In seeking to flag best practice in interventions which will improve this process, a number of writers have stressed the importance of partner skills (Arthur & Butterfield, in press; Houghton, Bronicki, & Guess, 1987; Mirenda, Iacono, & Williams, 1990; Siegel-Causey & Guess, 1989). Despite a number of encouraging reports about partner training programs (Haring, Neetz, Lovinger, Peck, & Semmel, 1987; McNaughton & Light, 1989; Schwartz, Anderson & Halle, 1989) the need to improve generalised practice remains.

This paper describes a professional development initiative centred on the needs of special education teachers working with students who have a moderate or severe intellectual disability in New South Wales (NSW), a state of Australia. The following questions will guide the discussion;

* What are teachers' perceived needs in the area of communication interventions with students who experience a moderate or severe intellectual disability?

* What are the essential components of a professional development manual which will both address teacher needs and reflect current best practice as outlined in the research literature?

Method

The methodology for this study has been reported elsewhere (Arthur & Butterfield, in press), and thus will only be provided as an overview in this paper.

Subjects

The identified population included all teachers of students with a moderate or severe intellectual disability in NSW schools. Although the research team were specifically interested in the professional development needs of teachers working with individuals who experience a severe disability, the heterogeneous nature of school and class groups in NSW made it necessary to survey a wide staff profile.

Settings varied to include Schools for Specific Purposes (SSP's), smaller support units or individual support classes in regular schools.

Design and instrumentation

A questionnaire provided the basis for collecting information, covering the three areas of student communication skills, teacher skills and needs and home/school issues. This paper reports on one aspect only, that of teacher needs. The information to be presented here was elucidated by the following question:

> What professional inservice support do you most need in order to facilitate and enhance the communicative skills of your students?

The questionnaire was piloted with twelve teachers in a representative range of settings (one SSP, one large unit and an individual support class), providing feedback and opportunity for refinement of the instrument. Completion time for the entire questionnaire was estimated at between 30-40 minutes.

Procedure

Based on staffing information provided by Central and Regional offices of the NSW Department of School Education, 676 questionnaires were sent to a total of 208 schools across the state. An accompanying letter to principals and teachers described the purpose of the study and provided a guarantee of confidentiality for respondents. Extra copies were included to ensure that all potential staff members could be involved, using the reply-paid envelopes provided.

When the specified return date had passed, schools with a poor response rate were contacted by telephone to remind staff of the questionnaire. A letter was sent to a stratified sample of non-respondents requesting teachers to indicate their reasons for non-participation.

Results

Response Rate

A total of 241 teachers returned the questionnaire, constituting a 38% mean response rate (range across regions 23-60%).

Teacher needs

Table 1 describes teacher responses to the question regarding professional development needs. The open-ended responses of teachers were grouped into the twelve inclusive categories listed. It should be noted that many respondents identified multiple needs.

Table 1

Reported professional development needs of special education teachers*

Needs	Number of reports	% of total responses (a, b)
Request for speech pathologist	53	22
Programming: Use of augmentative systems	51	21
Instructional strategies including generalisation	47	20
Miscellaneous eg English as second language, networks	44	18
Programming: Indiv who are pre-verbal, mult impaired	42	17
Technology: Computers, electronic systems	34	14
Programming: Goal setting, data collection	33	14
Assessment	32	13
Team programming: Parents, therapists	16	7
Use of document 'Prog Communication'	11	5
Programming: Behaviour and communication	9	4

a. Figures have been rounded to the nearest whole percentage point.

b. Sum of responses exceeds 100% due to multiple needs identified by many respondents.

* Adapted, with permission, from Butterfield, Arthur & Linfoot, (1992), *Special Education Perspectives*, *1*, 1.

Table 1 indicates a number of potential directions for professional development planning. Firstly, a large number of teachers expressed a need for support in assessment, programming and instructional practices. This theme runs through the reports summarised in Table 1, and suggests teacher interest in the 'how-to' aspects of communication interventions.

Secondly, and perhaps in contradiction to the above finding, 22% (n=53) of the respondents make a request for speech pathology services. It appears that these teachers either believe speech pathologists would be the most useful form of professional inservice support, or they have misunderstood the question and are here indicating a perceived need for more speech pathology services in educational settings generally.

Discussion and introduction to the Creating Communicative Contexts manual

As indicated in Table 1, teachers have identified a need for support in the area of assessment, programming and instructional techniques in communication interventions with students. Given the paucity of speech pathology services in NSW and the integral role of daily communication partners (Mirenda et al, 1990), such support must reflect current best practice and practical relevance to those for whom it is designed. An instructional manual, Creating Communicative Contexts (Butterfield, Arthur, Linfoot & Philips, 1992), was developed to address this need. In the following sections the manual will be introduced and discussed.

Assessment

In this first section, three techniques are suggested. Firstly, the teacher is provided with an interview format to be used with the communication partners of students across settings. Secondly, the teacher is introduced to a simple method for observing the student and noting the type and nature of interactions that the student participates in or observes. Finally, a personal goal-setting format is outlined, with the intention of stimulating partner reflection on interaction skills and areas for improvement.

Pragmatics, or the functions achieved by communicative behaviours, form the basis of the assessment section of the manual. Two aspects can be considered. Firstly, the functions that express needs and wants, such as requesting, rejecting, making choices and protesting. Secondly, the skills that facilitate social processes including responding to name, taking turns and greetings.

The assessment of communicative forms used by an individual is based on a continuum of developing communicative behaviour, described in Figure 1. Pre-intentional behaviours alert the communication partner that the student has a need and from the student's signal, they then attempt to interpret what it is they think was intended. A behaviour that more clearly indicates needs, such as vocalising or pointing and checking that the partner is attending is considered to be intentional. The use of more mature behaviours such as signing, pointing to a symbol or speech, indicate an ability to use more symbolic forms (Dunst & Lowe, 1986).

Figure 1
A continuum representing the process of learning to communicate

<table>
<tr><th colspan="6">LEARNING TO COMMUNICATE</th></tr>
<tr><th colspan="4">Pre-symbolic (Non-verbal)</th><th colspan="2">Symbolic (Verbal)</th></tr>
<tr><td colspan="2"><u>Pre-Intentional</u>
Primary Forms</td><td colspan="2"><u>Intentional</u>
Conventional Forms</td><td colspan="2"><u>Symbolic</u>
Conventional use of Symbolic Forms</td></tr>
<tr><td colspan="2">Only those who frequently interact with the student may understand the behaviours. The communication partner interprets the intended purpose of the interaction. Behaviours are idiosyncratic and non conventional. At first communication is not necessarily directed to a partner and depends on those nearby to interpret what is required.

Later the act is more goal directed, and may be directed to an object or to a partner. For example, staring at a required object and pointing or, gaining a partners attention but not indicating clearly why.</td><td colspan="2">The student makes their intentions known to a partner. There are increasingly mature forms used, for example the student may point to an object, and use eye contact. The student may take the partners hand and place it on the object of interest.

More people can understand the function of the behaviour. The process is now co-ordinated. The partner and the object of interest are combined into the one act. For example, eye gaze alternating from the object of interest to the person who is to receive the message.

There is combined use of vocalisations and gestures and expectancy that needs will be met.</td><td colspan="2">A symbolic system may be words, signs or pictures. These are now used to carry out the functions previously achieved with non-verbal means.

Initially the student refers to items, people or events present at the time (in context). The student progresses to using the symbolic system to refer to items, people or events not present at the time (out of context). The student may depend on a multi-modal system, of symbols, and/or gesture, and/or vocalisations. Symbols can be combined to extend the syntactic structure of language used.</td></tr>
<tr><td>Idiosyn-cratic behaviours. Behaviour state.</td><td>Goal directed behaviours.</td><td>Convention-al gestures (point,show, wave, give)</td><td>Early words to represent actions & functions (ah, oh-oh,brmm)</td><td>First words context dependent.</td><td>Combined words. Reference to out of context events.</td></tr>
</table>

Adapted from: Bates, Camaioni, & Volterra (1975); Bloom & Lahey, Dunst & Lowe, (1986); Harrison, Lombardino, & Stapell, (1987); McLean & Snyder McLean, (1978).

Programming

In this section the following steps are introduced and used as a framework for intervention;

* Analysing daily activities for communication opportunities
* Setting individually appropriate objectives
* Deciding on instructional processes
* Implementing the program in the context of daily activities
* Monitoring progress, evaluating and reviewing the intervention.

Instruction

Instructional strategies which have established support in the research literature have been organised according to the continuum identified in Figure 1. That is, those suitable for the development of pre-intentional to intentional communicative behaviours, those designed to encourage the link from intentional to symbolic communication and those aimed at extending symbolic abilities (Dunst & Lowe, 1986; Harrison, Lombardino & Stapell, 1987).

For each strategy the purpose, process and an example from classroom practice are presented in the *Creating Communicative Contexts* document, with emphasis being placed on the fluid nature of communication development across defined or arbitrary levels. Such an approach to the presentation of strategies does have the potential benefit of providing a starting point for interventions, in the light of the assessment information and programming decisions, and the translation of current best practices into a user-friendly format.

Pre-intentional to intentional

Strategies described in this section are designed to increase student responsiveness in the social setting as well as to improve partner ability to read communicative behaviours and to respond in a positive and affirming way. It can be expected that as an individual's behaviour becomes more intentional, so there will be an expansion in the range and number of people with whom interactions occur and a more effective match between expressed needs and wants and the services provided. Table 2 lists the key strategies suggested at this level and the purpose of each.

Table 2
Instructional strategies for developing pre-intentional to intentional communication skills

Strategy	Purpose
Contingent responding (MacDonald & Gillette, 1984)	The student learns to make an 'if-then' association between the production of a vocal or motor behaviour and some form of consequence. This highlights the importance of the communication partner responding consistently to behaviours which may be reflexive, as if they are communicative.
Wait and signal (MacDonald & Gillette, 1984)	The student learns that there is a turn taking and joint attention role associated with social or other interactive routines. The communication partner can pause in the process of normal routines and games before making eye contact with the student to signal the expectation of a response. Student responses are then reinforced in socially and functionally appropriate ways.
Shaping (Harrison, Lombardino & Stapell, 1987)	The student is reinforced for using closer approximations of a new form of communication. Thus the communication partner may respond to the student's whinges by suggesting that the student 'ask' for help before modelling eye contact and smiling. As the student incorporates approximations of these communicative forms, assistance is offered and reinforcement delivered.
Referencing (Bruner, 1983; McLean & Snyder-McLean, 1978)	The communication partner directs and redirects the student's attention to the object of interest and the communication partner. The student learns to communicate goals to a partner. For example, the student may appear to be staring at a desired object and vocalising. Assistance can be given to direct the student to look at the partner as well as the object.

Intentional to symbolic

With the development of intentional communication, the individual can be introduced to symbolic forms, examples of which include signs, speech, photographs and pictures. Instructional strategies used to promote skills at this level are outlined in Table 3. It should be emphasised that context is crucial in the execution of these strategies, with the communication partner effectively arranging the learning environment to encourage communication attempts by the student.

Table 3
Instructional strategies for developing intentional to symbolic communication skills

Strategy	Purpose
Mand-model (Rogers-Warren & Warren, 1980)	The communication partner, after noticing the student's interest in an object or event, initiates the interaction, mands (requests) a response and models the required response if necessary. The student is assisted through the process of learning to use a symbolic system in response to a request. For example, a student may go to the cupboard and take out the cordial bottle, indicating a desire for a drink. The communication partner notices the request, models use of an appropriate symbol and asks the student to respond 'Tell me what you want'.
Time delay (Halle, Baer & Spradlin, 1981; Schwartz, Anderson & Halle, 1989)	By pausing in a well known activity for a set time, and indicating with non-verbal means that a response is expected, the partner assists the student to increase the spontaneous use of newly learned behaviours. Continuation of the activity acts to reinforce the communication attempt. Avoiding providing verbal cues is a key to the effectiveness of this strategy in generating the desire to initiate in communicative exchanges.

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Table 3 continued

Strategy	Purpose
Interrupted behaviour chain (Alwell, Hunt, Goetz & Sailor, 1989)	Students are motivated to request objects or assistance when a well known routine is interrupted and an out of context item is inserted into the activity. The student should be familiar with the activity and have a strong desire to complete the task. For example, after beginning the activity of teeth cleaning, the communication partner removes the toothpaste, places the appropriate symbol in view and indicates that the student is to make a request for the item in order to complete cleaning teeth. The activity only continues if the student responds appropriately. If not, no reinforcement is given and the process returns to the beginning steps in the task.
Incidental teaching (Hart & Risley, 1982; Warren & Kaiser, 1986)	Once the student is able to initiate an interaction it is possible to encourage the use of expanded forms using the procedure of increasing the complexity of verbal prompts. A natural prompt such as 'What do you want?' can be used in the first instance to elicit a response. If no response is offered the communication partner can add 'You need to tell me what you want' and finally if necessary add a request for the student to say 'want...'.

Extending symbolic communication skills

The strategies described in Table 4 focus on increasing the student's understanding of the use of a symbol as a means of communication. At this level, it may be appropriate to incorporate some table-top instruction to extend the conceptual awareness associated with symbolic use. However, the ability to effectively use symbols (for example, signs, pictures, words) to control the environment is the key and instruction should always be focussed on the daily application and functional power of skills being taught.

Table 4
Instructional strategies for extending symbolic skills

Strategy	Purpose
Verbal prompt free (Mirenda & Dattilo, 1987)	The student gains access to an item or event by touching its symbol either accidentally or deliberately. Physical prompts may be given, but no verbal cues are delivered. Verbal acknowledgment can accompany access to the item the student touches. This strategy lends itself well to the selection of a leisure activity. For example, the student can make a choice between watching a video, making a milkshake, playing ball or jumping on the trampoline.
Generalised request/reject (Keogh & Reichle, 1985; Reichle, York & Sigafoos, 1991)	A generic symbol is selected to indicate a request (eg., happy face) and reject (sad). Use of a symbol for these functions may be necessary for students who have a range of other symbols that they are able to use in communicative exchanges, and need to link these with such generic functions as request, reject and provide information. For example, if a student points to the picture of 'sandwich' this may be to request, reject or tell you about a sandwich. The use of the symbol to indicate the function, accompanied by the object label can expand the functional power of the symbol system.
Match to sample (Thorley, Jardine & Binepal, 1984).	Discrimination learning techniques are used to help the student establish a clear concept for a given symbol. This approach is based on the careful control of discriminable features in stimuli. It can therefore provide opportunity to increase the student's conceptual understanding and use of symbols across settings, time and personnel. For example, a student may visit the bowling alley once a week, and so practice in using symbols associated with this activity may be needed between visits.

Inservicing program

In addition to a trialling phase for the Creating Communicative Contexts manual, a comprehensive program of staff development was introduced across the ten educational regions of NSW, Australia. Although information on this aspect of the project (Butterfield & Arthur, in press) and it's perceived effectiveness (Butterfield & Arthur, 1993) are beyond the scope of this paper, it is pertinent to note that this support appears to have played a large and positive role in stimulating communication partners to actively explore issues raised in the original manual (Butterfield & Arthur, 1993).

Conclusion

This professional development project has sought to provide realistic support to teachers based on both their identified needs and the directions evident in the current research literature. Much work remains to be done, however, especially in the enhancement of communication opportunities for individuals with a severe disability (McLean, McLean, Brady & Etter, 1991; Mirenda et al, 1990). A work currently in progress (Butterfield, Arthur, Linfoot & Sigafoos, in preparation) is placing particular emphasis on generalisation issues in communication interventions, including the role of setting variables, partner abilities and the dynamics of discourse.

We commenced this paper by stressing the transactive nature of communication and it is an appropriate note upon which to close. Functional and meaningful skills which are encouraged in and relevant to everyday situations, needs and wants must be able to be utilised in communicative environments which are genuinely receptive and inclusive. To further close the gap between such an ideal and general practice remains a continuing challenge for the future.

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